From: Hollomon, Brad [hollomon@pnl.gov]
Sent: Friday, April 18, 2003 5:10 PM
To: Richard H karney (E-mail)
Cc: Raymond McGowan; Richard L Orrison (E-mail); Ledbetter, Marc R
Subject: Comments on E* Labeling for Water Heaters

Thank you, Rich, for the opportunity to attend your stakeholders' meeting last Wednesday.

I have a few comments, which I hope are useful. Referring to the April 4 document by D&R International, Ltd.:

1. The National Savings of 260 billion Btu for electric storage water heaters is overstated in the table on page 5. The 260 billion Btu includes 102 billion Btu from increased sales of heat pump and solar water heaters (See the table on p. 16), and sales of these advanced units are not likely to increase if resistance units are also labeled Energy Star. In fact, consumers may receive the impression that Energy Star resistance units are highly efficient to the same degree as the advanced ones and choose the latter in smaller numbers due to the higher price. This would lead to a reduction in advanced electric water heater sales, which should be counted as a debit against the 158 billion Btu legitimately attributable to the resistance units.

2. As Noah Horowitz pointed out in the meeting, the values for Energy Factor are stochastic and will differ statistically from the certified rating for any given unit offered for sale, due to variations in manufacturing conditions. If the confidence interval for a single unit is comparable to a narrow difference between ordinary and Energy Star levels, the consumer is getting a roll of the dice (weighted, to be sure) and not an assured higher efficiency. The Energy Star label would mean in this instance that the consumer is more likely than not to be buying a higher efficiency product, but he could be buying a less efficient one. This has the potential to mislead consumers and undermine the credibility of the label.

3. Just as compact fluorescent lights don't pay for themselves in closets where they are used for only a few minutes a day, heat pump and solar water heaters are attractive primarily where hot water use and electric rates are high, and other options are not available. If one credits consumers with the good judgment to buy heat pump and solar water heaters preferentially for applications where they make the most economic sense, the energy (and corresponding cost) savings will be higher than the 1,095 billion Btu in National Savings predicted in the tables on page 10 and at the top of page 17, which appear to be based on national averages.

The attached file contains RECS and other data compiled by LBNL as part of the Technical Support Document for the coming residential water heater standard. Only the approximately 27 million homes with electric water heating are included in the table in Sheet 2, and I have added columns to the right hand side reflecting savings that would result from installing the "Drop In" heat pump water heater developed with support from DOE. The rows describing RECS cohorts can be sorted in order of potential savings, resulting in the curves in Charts 1, 4 and 5 and in estimates of the cumulative market share corresponding to any savings level. As you can see, heat pump water heaters in the most economically attractive 50,000 households would save 252 GWh per year, in contrast to the D&R figure of 151 GWh per year for 50,000 ANNUAL sales (presumably over some extended period of time) at the top of page 17. If one selects the best one percent (271,000 households, or about five and a half years of D&R's annual

sales), the corresponding figure is 1,242 GWh per year. Admittedly some of this market would in all likelihood be shared with solar, and distribution of advanced water heaters to their most economical applications will no doubt be imperfect. On the other hand, using national averages for water use, etc. to characterize the impact of the advanced technologies understates their impact.

Cheers,

Brad

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